BEFORE THE FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of:

The effect of Federal Communications Commission (FCC) Rule 90.535d(2)(3) **"Modulation and spectrum efficiency requirements"** on the future efficiency, budgetary impact and sustained viability of the Regional Wireless Cooperative (RWC), Topaz Regional Wireless Cooperative (TRWC), and other public safety agencies and radio systems in the Region.

Petition for Rulemaking

The Regional Wireless Cooperative (RWC), supported by the Topaz Regional Wireless Cooperative (TRWC), Arizona Public Safety Communications Advisory Commission (PSCC), Arizona Department of Public Safety (DPS), Yuma Regional Communication System, and the 700 MHz Region 3 Regional Planning Committee (Region 3 RPC), submit this Petition for Rulemaking to the Commission's rules for the mandatory transition deadline to be modified from December 31, 2016 to a date of December 31, 2020; or a yet to be determined date based upon certain criteria set forth by the Commission, in concert with the Region 3 RPC, representing the State of Arizona.

Background

The entities listed above are diligently working together to promote interoperability between the various systems and to develop a "system-of-systems" approach to link systems together for even greater interoperability and direct operability across wide geographic areas. Two of these regional systems impacted by the 2017 deadline and supporting public safety operations in the Phoenix metropolitan area are described below to provide a background and a clear perspective on the impact of 700 MHz narrow-banding on these two large systems.

The other regional systems currently operating or in development within the State of Arizona include the Pima County Wireless Integrated Network (PCWIN), Yuma Regional Communications System (YRCS), Maricopa County's Regional Public Safety Radio System and the State of Arizona's Department of Public Safety (DPS). DPS provides radio and data communications needs for all state-level public safety and transportation agencies' radio system. These systems, although geographically separate and diverse, are interdependent and supportive of enhanced interoperability as a core component of modern, contemporary public safety operations locally and statewide.

The RWC and TRWC are separate, but cooperative bodies formed under Intergovernmental Agreements whose purpose is to provide seamless, wide-area, operational and interoperational communications for all their Members through a governance structure founded on the principle of cooperation for the mutual benefit of all Members. Membership is open to all local, county, state, tribal and federal governmental

entities. Additionally, each system provides for use by critical public safety support entities such as private ambulance services.

Governance oversight is managed by a Board of Directors consisting of one executive representative from each Member. The boards direct the operation, maintenance, planning, design, implementation and financing of the RWC and TRWC. Membership includes the majority of cities, towns and fire districts in the greater Phoenix metropolitan area. Current membership to the RWC and TRWC, as of September 1, 2011 includes:

City of Apache Junction
City of Avondale
Town of Buckeye
City of Chandler
Daisy Mountain Fire District
City of El Mirage
City of Glendale
Town of Gilbert
City of Goodyear
Town of Guadalupe
City of Mesa
City of Maricopa
City of Phoenix
Rio Verde Fire District
City of Peoria
Town of Queen Creek
City of Scottsdale
Sun City Fire District
Sun City West Fire District
Sun Lakes Fire District
City of Surprise
City of Tempe
City of Tolleson

The RWC and TRWC radio networks are large, public safety systems based on the Project 25, Phase I Standard. The networks are ASTRO 25™, Integrated Voice and Data, trunked radio systems. They operate in the 700/800 MHz frequency bands and use standard simulcast, IP simulcast, and individual site trunking. The networks consist of eight (8) major simulcast subsystems and ten (12) Intelligent Site Repeaters (ISR's). Over 18,200 Member subscriber units (radios) are currently supported on these networks. Additionally, there are more than 55 non-Member agencies on the network with over 11,600 radios, which use the networks as interoperability participants.

The systems provide seamless, wide-area coverage across the entire metropolitan area. They are data capable, but at the current time are only used in a data capacity to provide encryption services. The RWC and TRWC systems have provided platforms on which to build interoperability with many other agencies. Because of the regional nature of the systems, participating members have invested in excess of $164.5 million as well as over $19.2 million in state and federal grant funding to increase the regional use of the systems and reduce the cost of membership in the RWC and TRWC. Obviously, with the current fiscal environment of the country and impact on state and local agencies, any significant increase in infrastructure or subscriber unit costs would be detrimental to maintaining these networks or unachievable for already highly stressed budgets.

Grants have been used to link the many dispatch centers (PSAP's); add the City of Tempe to the network, increase system capacity to allow greater roaming and interoperability; add several mountain sites to be used for improved wide-area coverage, emergency backup and wide-area interoperability; provide connectivity to the City of

Peoria's new system; provide cache radios to be used for emergencies, and an emergency hospital emergency intercommunications network.

The RWC and TRWC systems have been effectively used to provide interoperable communications for several special events in the metropolitan area. The systems were used during the 2004 Presidential Debates linking motorcade officers, providing interoperability for the City of Tempe and Arizona State University (ASU), and provided administrative communications for the ASU staff coordinating the debate.

The systems provided support for the annual Fiesta Bowls, BCS football games, the 2008 Super Bowl, 2009 NBA and 2011 MLB All Star games. The Super Bowl, in particular, clearly demonstrated the need for a truly regional radio system and has prompted more discussions between the metropolitan cities on how to effectively use the two systems while minimizing the costs associated with maintaining individual, disparate systems.

Problem

As is the case with most governmental entities across the country, the above agencies are facing significant budgetary challenges due to the declining economy. Reductions in revenue have prompted corresponding consolidations and even reductions in service delivery. Maintaining basic government services as well as radio system infrastructure and subscriber equipment (radios) are major challenges for the above agencies' members for many years to come. System changes of this type require agencies to plan ahead extensively, for a minimum of 5 years and generally much longer, when budgets are being significantly reduced due to major economic conditions.

Additionally, in systems of this size, a conversion requires several years of coordination. This rule requires that a majority of existing system equipment and subscriber handheld units are not just converted, but replaced. Even when considered on a system-by-system basis, the impacts to each system are large, but when the number of interoperability users is also considered, the changes to one system may significantly impact users in many other agencies.

For these reasons, the supporting signatories request the Commission modify the current rules addressing spectrum efficiency as cited above. If the current December 31, 2016 deadline is not extended, it will have a significant negative impact for all members and users of the systems named above.

Considerations and Proposed Solutions

Our position has five (5) main points for consideration:

1. 700 MHz frequencies are being allocated effectively and used efficiently in Region 3.

2. TDMA standards have not yet been fully ratified and consequently, there is a lack of available products, specifically subscribers, which comply with the standard.

3. Product lifecycles, costs and availability are such that agencies are significantly challenged to maintain their infrastructure and subscribers in sound, up-to-date working order to effectively support public safety operations.

4. Frequency management, including narrow-banding is best managed regionally by the local agencies to best fit the needs of their area.

5. TDMA conversion for systems using a combination 700 MHz and 800 MHz require more changes than just to the 700 MHz frequencies.

Discussion

1) 700 MHz frequencies are being allocated effectively and used efficiently in Region 3:

The Region 3 RPC has not yet seen enough requests for 700 MHz narrowband channels to require a migration to TDMA two-channel equivalency to support any outstanding applications for channels. The RWC and TRWC have made several large deployments on 700MHz narrowband voice channels in the region; however region-wide deployments are few. No channel contention exists in Region 3 at this time, thus the immediate need to begin costly upgrades to TDMA two-channel equivalency by the December 31, 2016 deadline does not exist. While financial planning for these upgrades has begun within Region 3, the current deadline is simply an unreachable goal for a majority of the public safety agencies within this region at this time and does not appear to be necessary as we have constructed unified systems, as was the apparent goal and intent of creating this band for public safety's use.

2) TDMA standards have not yet been fully ratified and consequently, there is a lack of available products, specifically subscribers, which comply with the standard:

The Project 25 Phase 2 TDMA TIA-102 Core definition documents have been published. Some work still remains, however, to complete the suite of testing and compliance documents which are vital to verify system implementation. While it appears these compliance documents may be complete by 2012, beginning the financial planning process for an upgrade with unfinished standards can be problematic from the perspective of stakeholders' perceptions. The degree of difficulty for system planners seeking the financial buy-in of key stakeholders not well versed in technical issues is thus raised. This air of uncertainty created by incomplete standards documents makes the high financial hurdle of the 2016 date even more difficult.

3) Product lifecycles, costs and availability are such that agencies are significantly challenged to maintain their infrastructure and subscribers in sound, up-to-date working order:

While current systems and subscribers are very advanced and well structured to meet the frequency efficiencies required by the FCC, these systems are very expensive. Very significant investment is needed to implement such systems and maintain them up to date and compliant with the emerging standards. Manufacturers do not support these systems once they become more than 3 or 4 software versions out of date. In the present era, that translates to 2 to 4 years at the most. These systems are also very complex technically, and while some agencies may be able to self-maintain their systems, for the most part, support from the manufacturer is an integral part of keeping the systems operating properly. Consequently, agencies must maintain software and hardware maintenance contracts with the manufacturers. These contracts typically do not include system transformations such as moving to the TDMA two-channel equivalency.

Agencies are also used to replacing their subscribers every 5 to 7 years, but the current economic climate is forcing agencies to make their subscribers last much longer. Further, due to the complexity of the current subscribers, they cost significantly more than those agencies previously used (conventional). The RWC and TRWC, for example, are trying to extend the useful lifecycle subscriber units to 7 to 10 years; but even that time frame is proving to be unachievable financially.

The current narrow-banding mandate means that most of the agencies in Region 3, in addition to upgrading their infrastructure, must replace all of their subscribers. This is proving to cost more than twice the amount necessary to simply upgrade the infrastructure.

Based on the above, the RWC alone has projected that it will cost about $50 million to upgrade its infrastructure, and an additional $103 million to replace its fleet of subscribers. Other agencies face similar costs.

4) Frequency management, including narrow-banding is best managed regionally by the local agencies to best fit the needs of their area:

In lieu of the 2016 TDMA requirement date, the signatories and the Region 3 RPC would like to propose that the Regional Planning Committee (RPC) which contains membership of all qualified applicants for 700 MHz channels, determine when an actual date to convert to TDMA 6.25 kHz channels is required. This change will allow technology changes to take place as budgets allow and new equipment becomes available, and will be also based on regional need and coordination, not simply on a fixed date. For example, when 60 percent of the available Arizona 700 MHz public safety channels are in use, the RPC would generate a notice to all appropriate public safety frequency owners of a 5-year period to convert to TDMA 6.25 kHz. We believe this meets with the intent of Commission's actions by allowing RPC's optimal flexibility to meet state and local needs. Since the RPC's are closely in tune with local needs and actual channel usage we believe that that proposal has merit and deserves consideration.

5) TDMA conversion for systems using a combination 700 MHz and 800 MHz require more changes than just to the 700 MHz frequencies:

Agencies, such as the RWC and TRWC have been planning for the FCC narrow-banding mandate. All of the equipment purchased for new 700 MHz portions of the system are narrow-band ready. However, while the TDMA and FDMA protocols may be mixed on a single system, they may not be used simultaneously on the same talk group thus limiting roaming across the system. This inability to roam across the system, limits both direct operations and interoperability among users, and thus defeats the major premise of having a large regional system. In order to preserve the full capabilities of the regional system, all FDMA components of the system must also be converted to TDMA. This, of course, adds to the cost of meeting the narrow-banding mandate.

Summary

All of the above points come together to support our request to delay the narrow-banding mandate to December 31, 2020; or a yet to be determined date based upon certain criteria set forth by the Commission, in concert with the Region 3 RPC, representing the State of Arizona.

This is a critical time in the short success stories of these systems. The signatories request swift review, decision and response from the FCC. This will allow system managers and budget and policy makers sufficient time to plan and fund only those portions of the affected systems that require immediate, necessary upgrades and normal lifecycle replacement.

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Regional Wireless Cooperative	Topaz Regional Wireless Cooperative
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Arizona Department of Public Safety	Yuma Regional Communications System

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Arizona Public Safety Communications Advisory Commission

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Region 3 - Arizona
Regional Planning Committee